Alexander B. Rudin

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(703) 362 – 3057

University of Virginia
B.S. Mechanical Engineering
Minor: Computer Science

I combine 7 years of CAD modeling experience with a deep and proficient understanding of the computer systems, mechatronic functionality, and engineering theory required in a successful mechanical design. These skills have been honed through industry experience and academic coursework to allow me to not only successfully and appropriately create a design, but also to understand the critical nuances of the design that allow for its integration in our modern world.

EDUCATION

August 2016 – May 2020 **University of Virginia** – *Charlottesville, VA*

B.S. Mechanical Engineering

Minor: Computer Science

Cumulative GPA: 3.88

EXPERIENCE

May 2019 – August 2019 **Zeta Associates, Inc.** – *Fairfax, VA*

Software Development Intern

- Used Python to develop, test, and benchmark production-level code for a digital signal processing algorithm
- Utilized CUDA library with NVIDIA GPUs to improve runtime

May 2018 – August 2018 **Clark Construction Group, LLC** – *Bethesda, MD*

Research and Development Intern

- Used pug and node.js to implement an interface used by project teams to automate sending requisitions and Release of Liens to subcontractors

May 2017 – January 2018 **Windpact, Inc.** – *Leesburg, VA*

Engineering and Design Intern

- Developed CAD models in Solidworks for vacuum form molds and CNC machined the molds on a ShopBot using VCarve CAM software
- Used vacuum former and RF Welder to build pad prototypes and assembled prototypes into sports helmets and other protective gear

SKILLS

Certified Solidworks Associate (CSWA), Autodesk Fusion, Autodesk Inventor

MATLAB, C++, Python, Java, HTML, CSS, JavaScript, Pug, Scikit-Learn, Keras Tensorflow, Microsoft Office Suite

ACTIVITIES

August 2017 – present	UVa ULink Peer Advising
August 2016 – present	UVa Club Ultimate Frisbee • Vice President 2018 – 2019 • Captain 2019 – 2020

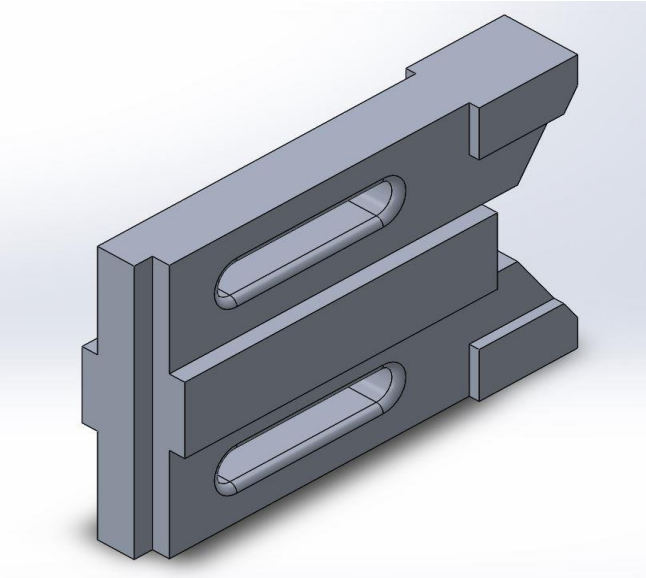
AWARDS

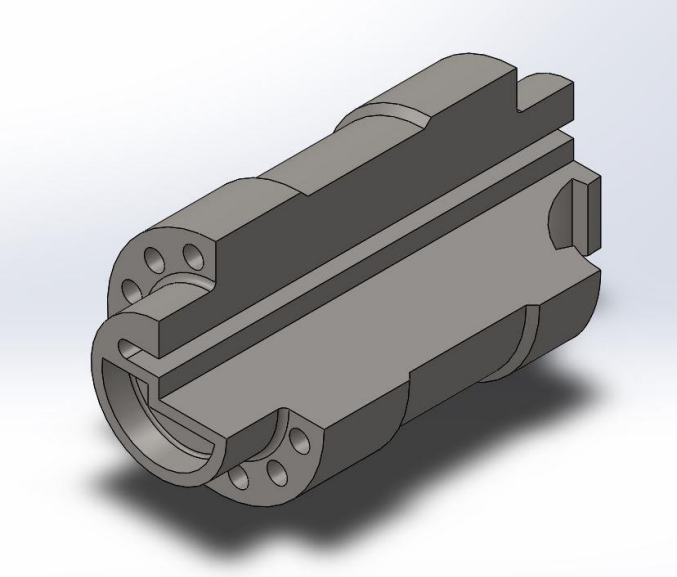
November 2016	Finalist for UVa Entrepreneurship Cup Concept Competition
September 2018 – present	Pi Tau Sigma Mechanical Engineering Honor Society
October 2018 – present	Tau Beta Pi Engineering Honor Society
October 2018	UVa Intermediate Honors Recipient (top 20% of engineering school class)

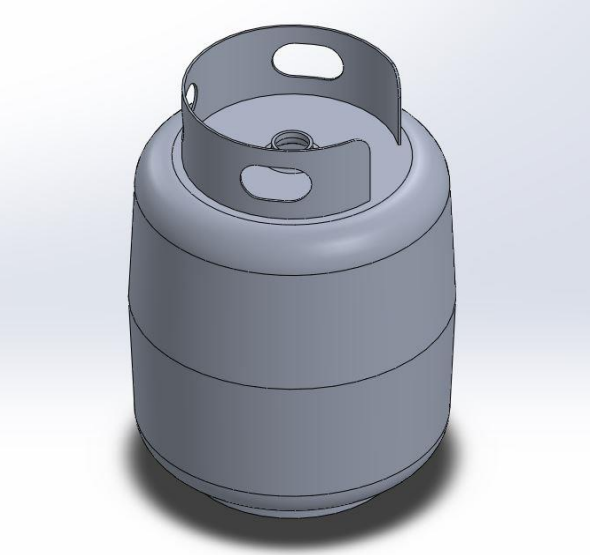
Contents

SolidWorks Certification Exam

I developed these models as solutions to problems on the SolidWorks Certification Exam. All three were based on a set of fully-dimensioned drawings provided through the exam and were made as individual parts, not to be incorporated into assemblies.

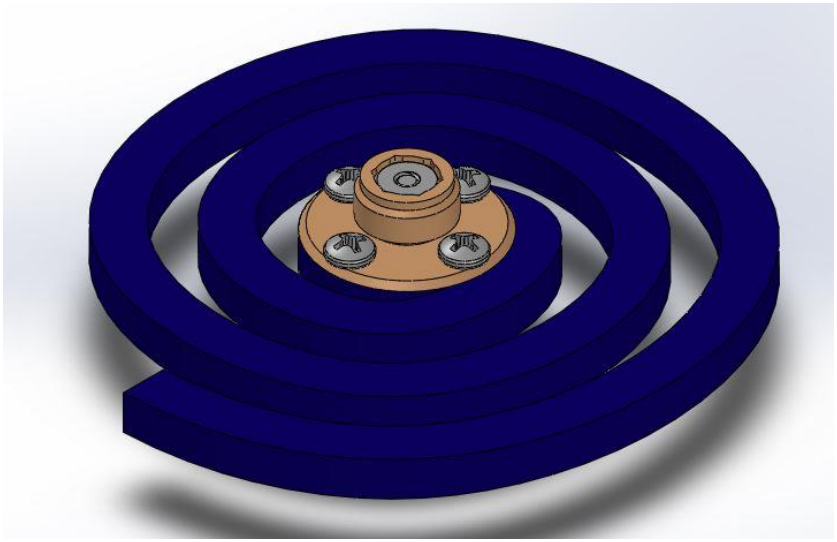


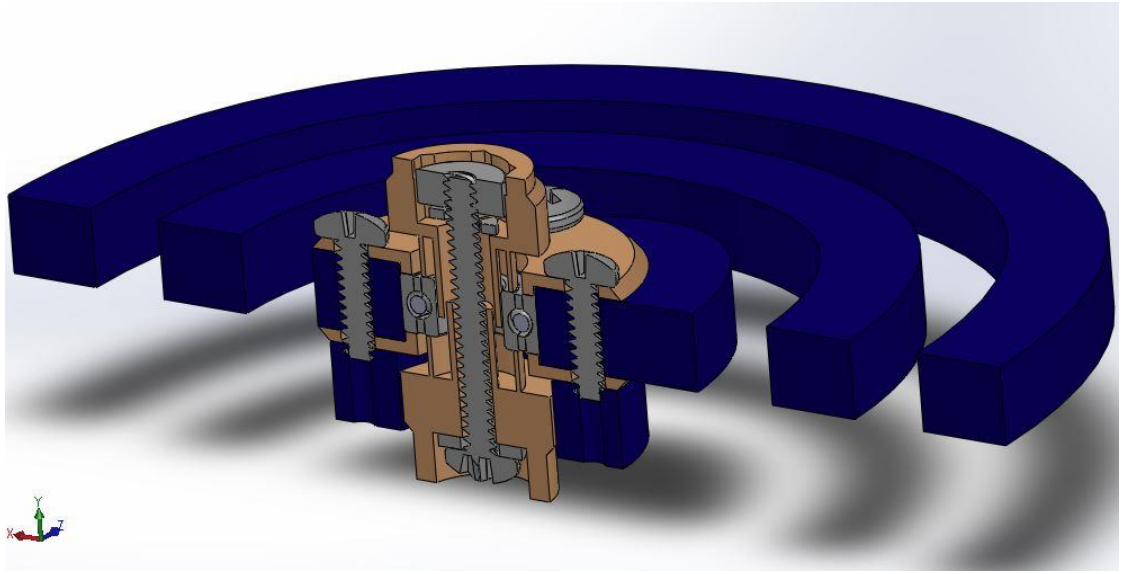




Spiral Fidget Spinner

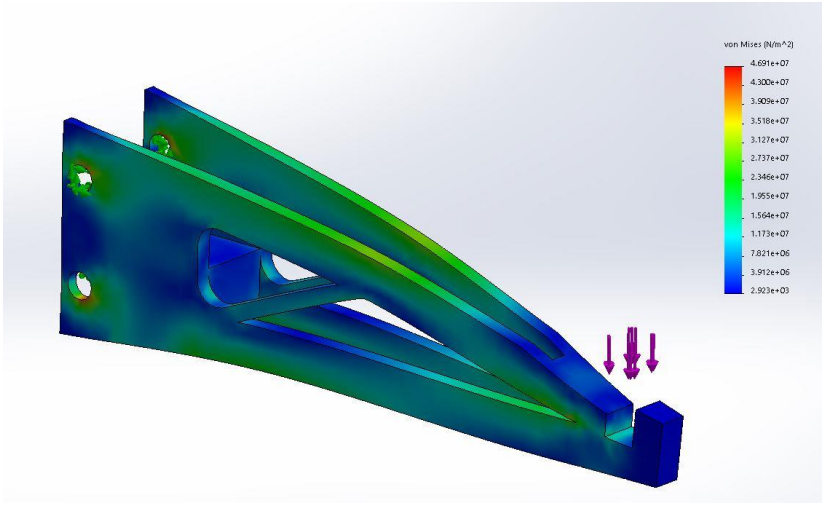
I developed this assembly in 2019 as part of an assignment for my Machine Design course. Based on this assembly, the blue components were laser cut from 0.25" acrylic and the central clamping components (in orange) were 3D printed. General guidelines were provided regarding bolt and bearing choice, as well as manufacturing techniques, however the details of the design were custom to this model.

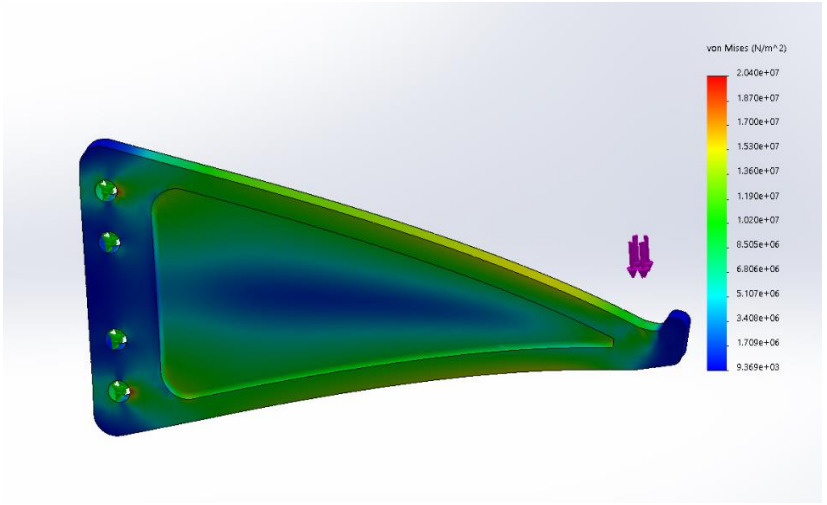




3D Printed Cantilever Beam

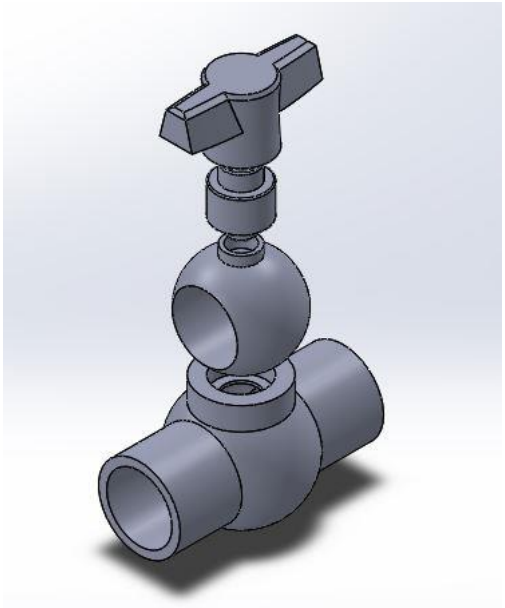
I developed this model in 2019 as part of an assignment for my Machine Design course to be 3D printed from ABS plastic with the goal to hold as much weight as possible within a 2 cu. in. volume limit. SolidWorks FEA simulations were conducted on each model to estimate the load bearing capacity, deformation, and potential fracture points. The design on the left was an early model for the beam, while the design on the right was the final model used by my group.

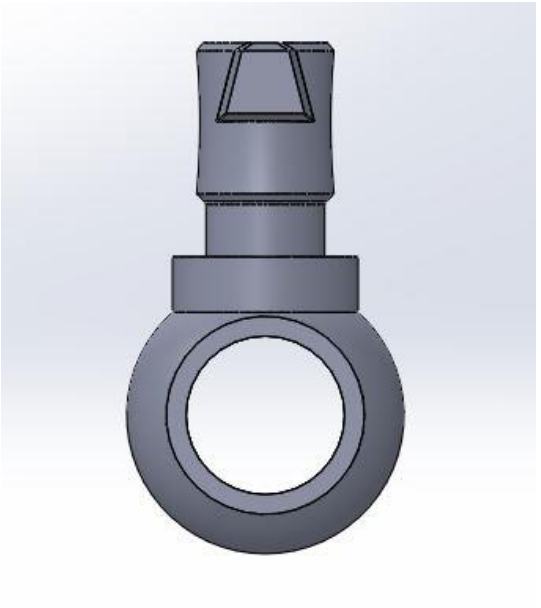


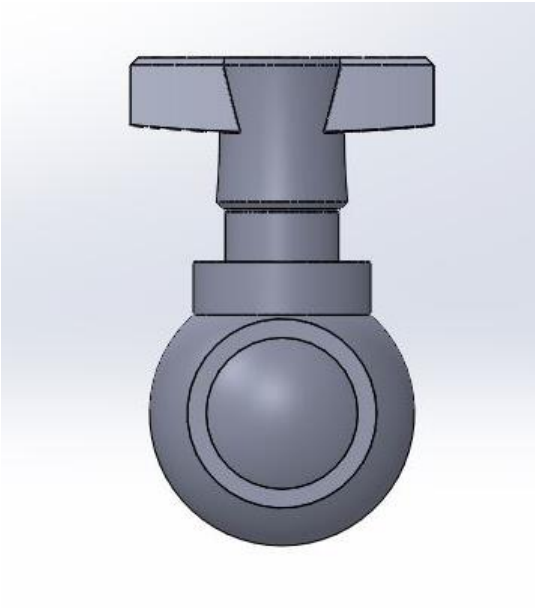


Ball Valve

I developed this model in 2020 as an exploration into press fit tolerancing and gap tolerancing. All joints are intended to be press fit, while the gap between the ball and the pipe meets clearance fit parameters. This clearance fit does not impede proper flow or stoppage across the valve.

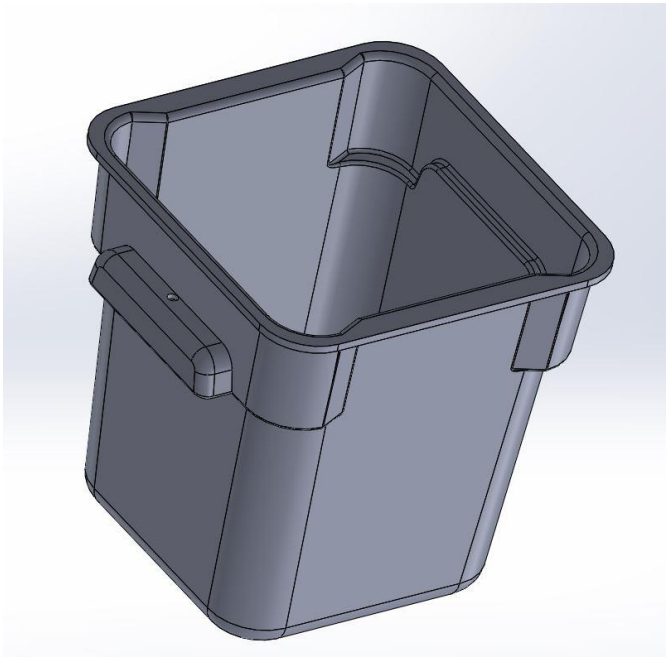


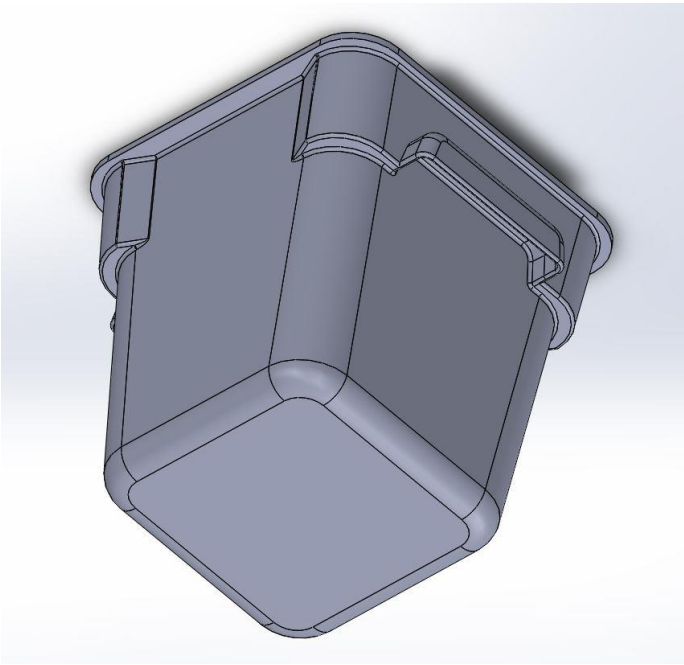




4 qt. Square Food Storage Container

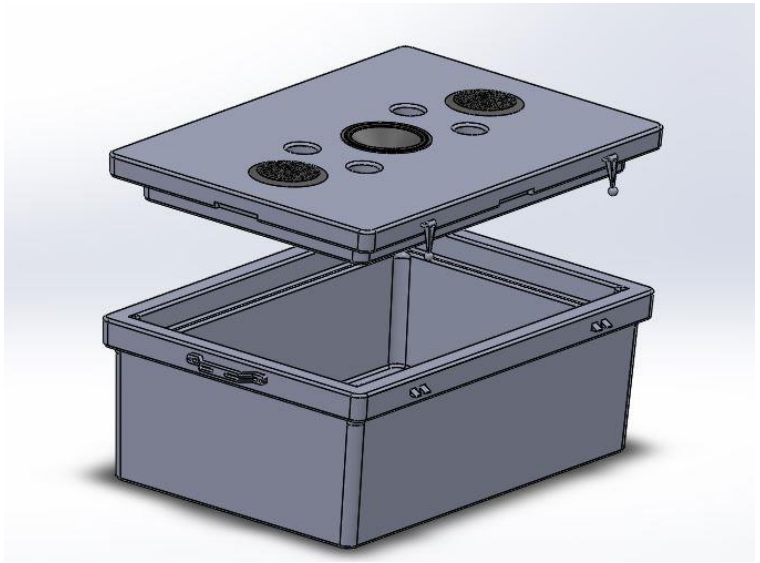
I developed this model in 2020 as part of a technical interview. All dimensions were taken by hand from the physical model with no drawing provided. This model provides an example of process and design for injection molded parts.

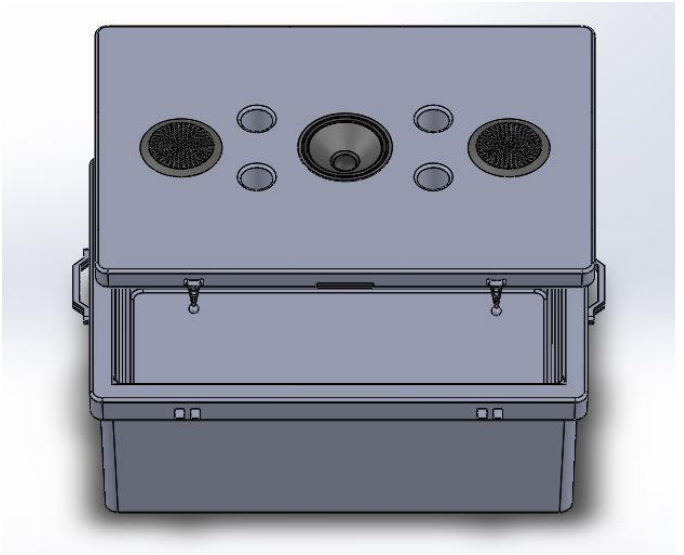




Cooler with Onboard Speaker

I developed this model in 2020 based on an original design for an injection molded cooler. As such, all cooler elements are properly lofted for manufacturability. The model features four elastic latches similar to those found on other modern coolers.





6-pack Can Holder

I developed this design in 2020 by reverse engineering the product based on the physical model as an exploration into injection molding techniques. All dimensions were taken by hand.